

### Miscellaneous exercise 15

- 1 Find the maximum and minimum values of  $x^3 - 6x^2 + 9x + 6$ , showing carefully how you determine which is which.
- 2 Find any maximum and minimum values of the function  $f(x) = 16x + \frac{1}{x^2}$ , indicating how you decide whether they are maxima or minima.
- 3 Find any maximum and minimum values of the function  $f(x) = \sqrt{x} + \sqrt{30 - 5x}$ , and give the corresponding values of  $x$ .
- 4 Find the coordinates of the maximum and minimum points on the graph of  $y = \frac{1}{x} + \frac{1}{1 - 4x}$ .

